

Foreword

How Forecasts Are Made

Most of the annual streamflow in the Western United States originates as snowfall. This snowfall accumulates high in the mountains during winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Predictions are based on careful measurements of snow water equivalent at selected index points. Precipitation, temperature, soil moisture and antecedent streamflow data are viewed in conjunction with snowpack data to prepare runoff forecasts. This report presents a comprehensive picture of water supply outlook conditions for areas dependent upon surface runoff. It includes selected streamflow forecasts, summarized snowpack and precipitation data, reservoir storage data and narratives describing current conditions.

Streamflow forecasts are cooperatively generated by Soil Conservation Service and National Weather Service hydrologists. Forecasts become more accurate as more data affecting runoff becomes known. For this reason, forecasts are issued that reflect three future precipitation conditions — Below Normal, Average, and Above Normal. These forecasts are termed reasonable minimum, most probable, and reasonable maximum. Actual streamflow can be expected to fall between the lower and upper forecast values eight out of ten years.

Snowpack data are obtained by using a combination of manual and automated measurement methods. Manual readings of snow depth and water equivalent are taken at locations called snow courses on a monthly or semi-monthly schedule during the winter. In addition, snow water equivalent, precipitation, temperature, and other parameters are monitored on a daily basis and transmitted via radio telemetry to central data collection facilities. Both monthly and daily data are used to project snowmelt runoff.

For More Information

Copies of Monthly Water Supply Outlook Reports and other reports may be obtained from the states listed below. Because of the limited space, snow survey measurements are not published in monthly reports. An annual snow survey data summary is published by the Soil Conservation Service for each of the western states. Historical snow survey data may be obtained at those same offices.

STATE	ADDRESS
Alaska	201 East 9th Ave., Suite 300, Anchorage, AK 99501-3687
Arizona	201 East Indianola, Suite 200, Phoenix, AZ 85012
Colorado (New Mexico)	2490 West 26th Ave., Denver, CO 80211
Idaho	304 North 8th Street, Room 345, Boise, ID 83702
Montana	10 East Babcock, Room 443, Federal Building, Bozeman, MT 59715
Nevada	50 South Virginia Street, Third Floor, Reno, NV 89505
Oregon	1220 Southwest 3rd Ave., 16th Floor, Portland, OR 97204
Utah	4402 Federal Building, 125 South State Street, Salt Lake City, UT 84147
Washington	360 U.S. Court House, Spokane, WA 99201
Wyoming	Federal Building, 100 East "B" Street, Casper, WY 82602

In addition to state reports, a Water Supply Outlook for the Western United States is published by the Soil Conservation Service and National Weather Service monthly, January through May. Reports may be obtained from the Soil Conservation Service, West National Technical Center, 511 Northwest Broadway, Room 547, Portland, OR 97209.

Published by other agencies:

Water Supply Outlook Reports prepared by other agencies include: California — Snow Survey Branch, California Department of Water Resources, P.O. Box 388, Sacramento, CA 95802; British Columbia — The Ministry of Environment, Water Investigations Branch, Parliament Buildings, Victoria, British Columbia, V8V 1X5; Yukon Territory — Department of Indian and Northern Affairs, Northern Operations Branch, 200 Range Road, Whitehorse, Yukon Territory, Y1A 3V1; Alberta, Saskatchewan, and N.W.T. — The Water Survey of Canada, Inland Waters Branch, 110-12 Avenue S.W., Calgary, Alberta, T2C 1A6.

Oregon Water Supply Outlook

and

Federal – State – Private Cooperative Snow Surveys

Issued by

Wilson Scaling
Chief
Soil Conservation Service
Washington, D.C.

Released by

Jack P. Kanalz
State Conservationist
Soil Conservation Service
Portland, Oregon

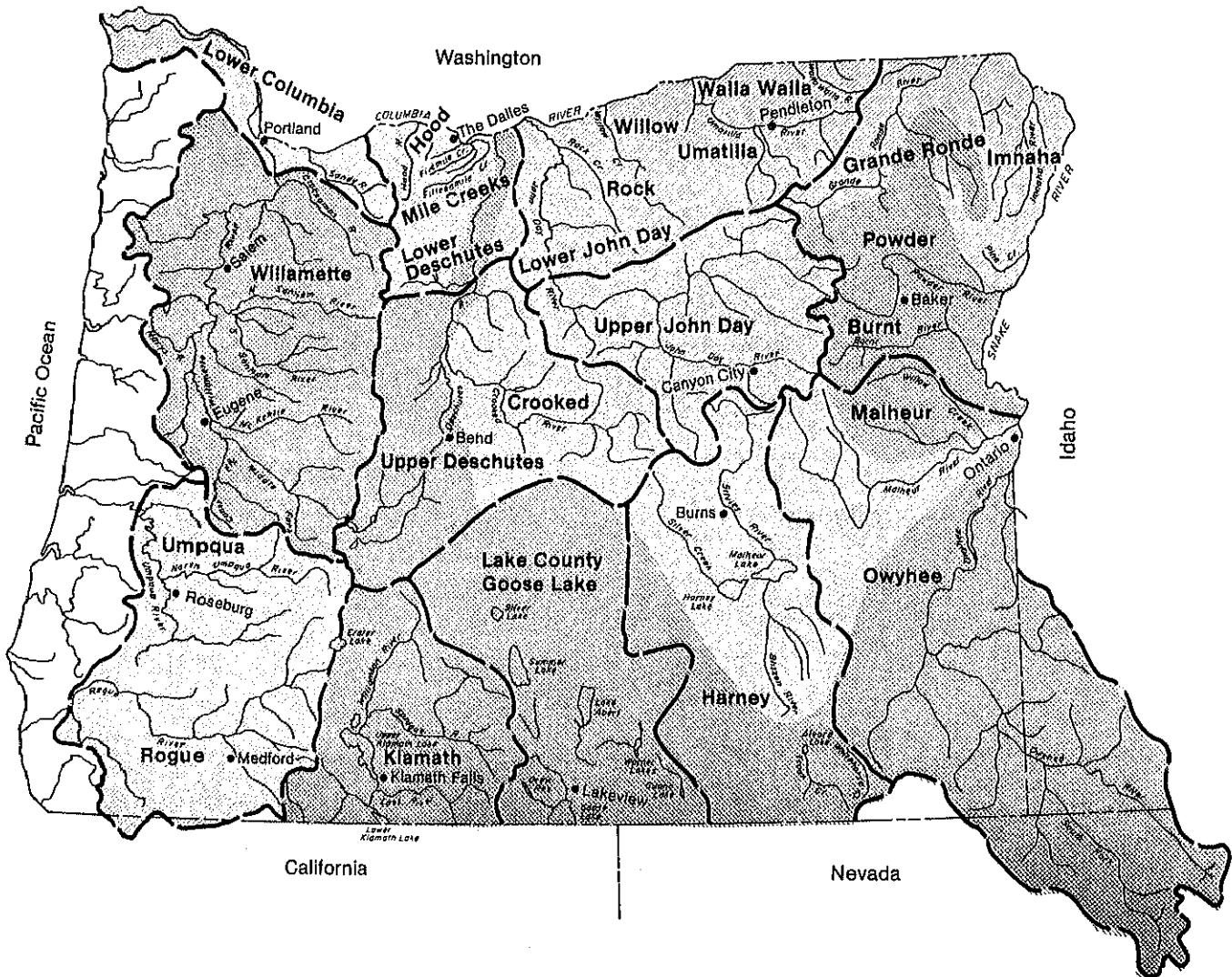
Prepared by

Stanley R. Fox
Snow Survey Supervisor
Soil Conservation Service
1220 SW 3rd Ave., 16th Fl.
Portland, Oregon 97204

Programs and assistance of the United States Department of Agriculture are available without regard to race, creed, color, sex, age, or national origin.

Streamflow Prospects for Oregon

Spring and Summer Period



Streamflow Prospects

- Much above average: ($>130\%$)
- Above average: (110-130%)
- Near average: (90-110%)
- Below average: (70-90%)
- Much below average: ($<70\%$)
- Not forecast

20 0 20 40 60
SCALE IN MILES

GENERAL OUTLOOK

SUMMARY:

STREAMFLOW WILL BE BELOW NORMAL OR NEAR NORMAL THIS SUMMER. MOST OF THE TRANSIENT SNOWPACK IS GONE. MAY PRECIPITATION WAS GOOD OVER MOST OF THE STATE. RESERVOIR STORAGE IS VERY GOOD.

SNOWPACK:

Only the very high elevations continue to have snow. The season finished with a poor snowpack west of the Cascades and a near normal snowpack east of the mountain crest. The only exception to the near normal snowpack is eastern Oregon in the Umatilla and Rock Creek area where the snowpack is much below normal.

PRECIPITATION:

May precipitation was much above average in western and southeastern Oregon. Below normal amounts were received in the rest of the state. The lowest amount was 53% of average in the Deschutes area and the highest was 179% in Lake County. For the water year to date, most of Oregon had near normal amounts of precipitation. Again, it was southeastern Oregon that had above average amounts (116%-131% of average).

RESERVOIRS:

Twenty-nine principal irrigation reservoirs currently contain 3,063,400 acre feet of water. This is 117% of average and 93% of capacity.

STREAMFLOW:

May streamflow was near average over most of Oregon. The exception to this was much below normal flows in the John Day area and above average in Malheur County.

Prospective streamflow as percent of average on representative Oregon streams is as follows:

STREAM	PERIOD	% of AVERAGE
Owyhee Net Inflow	May-Sep	97%
Grande Ronde at LaGrande	May-Sep	80%
Umatilla at Pendleton	May-Sep	78%
Deschutes at Benham Falls	May-Sep	90%
Willamette MF Nr Oakridge	May-Sep	94%
Rogue at Raygold	May-Sep	85%
Upp Klamath Lk Net Inflow	May-Sep	96%
Silvies Nr Burns	May-Sep	83%

Malheur Lake in Harney County has surpassed last year's record high peak. The lake remained near 4102.5 feet in April and peaked near the end of April at 4102.55 feet. The July 1 forecast is for an elevation of 4102.30 feet and a surface area of 123,000 acres.

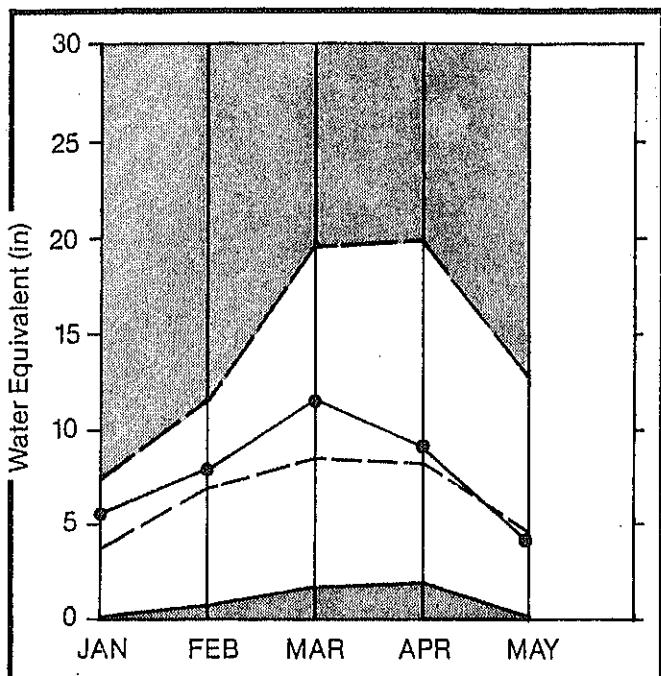
These forecasts assume normal weather conditions will occur throughout the forecast period.

The forecasts in this bulletin are a result of coordinated activity between the Soil Conservation Service and the National Weather Service in an effort to provide the best possible service to water users.

This report contains data furnished by the Oregon Department of Water Resources, US Geological Survey, NOAA, National Weather Service and other cooperators.

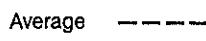
Owyhee and Malheur Basins

Mountain snowpack* (inches)



*Based on selected stations

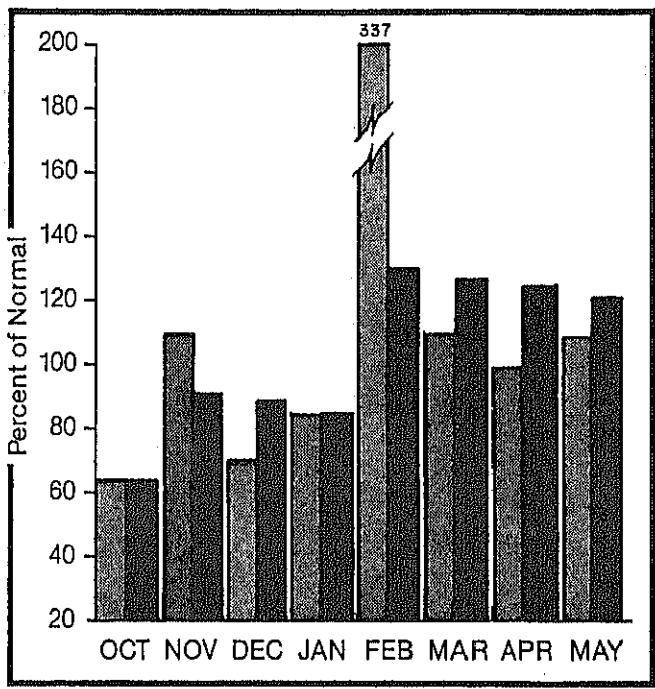
Maximum 

Average 

Minimum 

Current 

Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation 

Year to date precipitation 

WATER SUPPLY OUTLOOK:

Summer streamflows are forecast to be near normal except for the Malheur which should flow at 85% of normal. Most of the snowpack has melted. May precipitation was 109% of average and it was 121% for the season. Reservoir storage is excellent with all reservoirs in the area containing much above average amounts of water.

For more information contact your local Soil Conservation Service office.

OWYHEE AND MALHEUR BASINS

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	20 YR. AVE. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (%) AVE.	REAS. MAX. (%) AVE.	REAS. MIN. (%) AVE.	PEAK FLOW (CFS)	PEAK DATE	LOW FLOW (CFS)	LOW DATE
BULLY CREEK at Wamsprings	MAR-MAY	14.4	13.2	92	132	56				
MALHEUR near Drewsey	MAY-JUL	32.6	28.0	86	129	43				
	MAY-SEP	34.3	29.2	85	128	41				
MALHEUR, NORTH FORK at Beulah	MAY-JUL	35.4	31.0	88	138	37				
	MAY-SEP	40.9	35.6	87	132	42				
OWYHEE RESERVOIR net Inflow	MAY-JUL	186.7	181.0	97	137	57				
	MAY-SEP	213.6	207.2	97	137	57				
OWYHEE at Rome	MAY-JUL	189.7	184.0	97	142	52				
SUCCOR CREEK nr Jordan Valley	MAY-JUL	5.1	4.8	94	137	59				

RESERVOIR STORAGE

(1000AF)

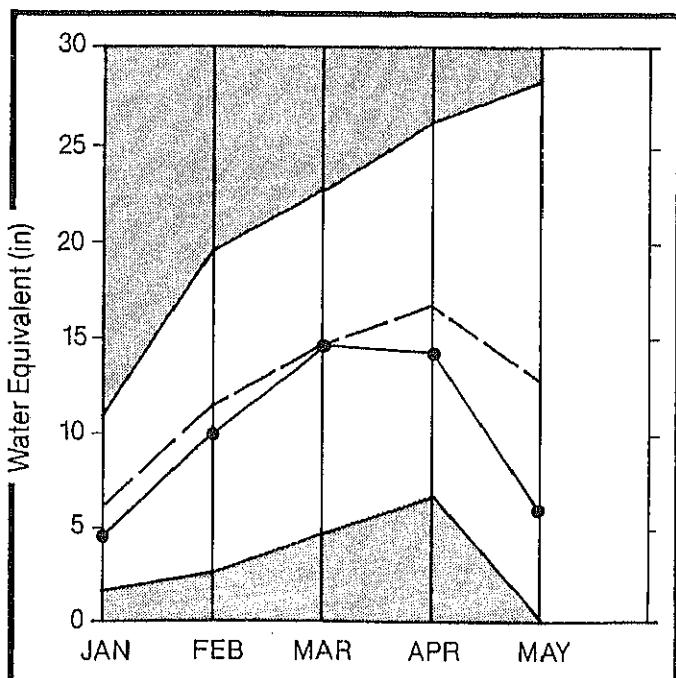
WATERSHED SNOWPACK ANALYSIS

RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE **			WATERSHED	NO. COURSES AVE.0	THIS YEAR AS % OF LAST YR. AVERAGE
		THIS YEAR	LAST YEAR	AVE.			
BEULAH RES	60.0	56.2	54.9	48.2	Owyhee River	0	0
BULLY CREEK	30.0	28.1	26.0	23.1	Malheur	0	0
OWYHEE	715.0	714.0	686.1	599.6	Jordan Creek	0	0
WAMSPRINGS	191.0	166.9	159.7	139.0	Bully Creek	0	0

*Corrected for upstream diversions or changes in reservoir storage.
Average is for 1961-80 period.

Burnt, Powder, Grande Ronde, and Imnaha Basins

Mountain snowpack* (inches)



*Based on selected stations

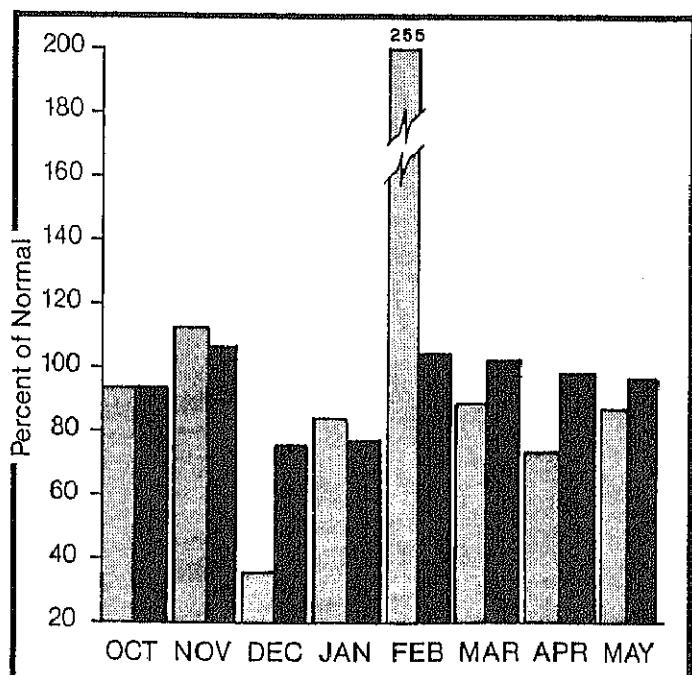
Maximum 

Average 

Minimum 

Current 

Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation 

Year to date precipitation 

WATER SUPPLY OUTLOOK:

Streamflows are forecast to be near normal this summer except for the Grande Ronde, Imnaha, and Lostine Rivers which should have flows below normal. Aneroid Lake and Mt. Howard are the only SNOTEL sites in the area that are reporting any snow remaining. Precipitation during May was 88% of normal over the entire area. For the Oct-May period it has been 97% of normal. Reservoir storage is much above average.

For more information contact your local Soil Conservation Service office.

BURNT, POWDER, PINE, GRANDE RONDE AND IMNAHA BASINS

STREAMFLOW FORECASTS

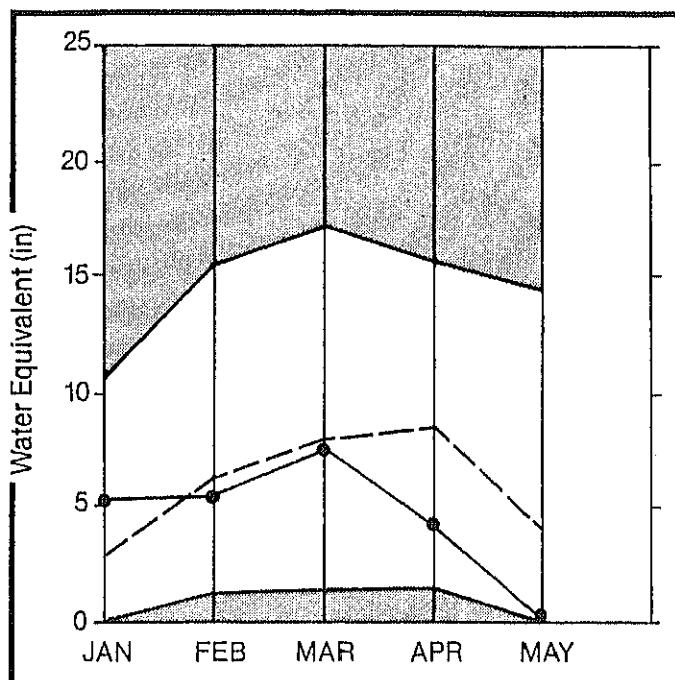
FORECAST POINT	FORECAST PERIOD	20 YR, AVE. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVE.)	REAS. MAX. (% AVE.)	REAS. MIN. (% AVE.)	PEAK FLOW (CFS)	PEAK DATE	LOW FLOW (CFS)	LOW DATE
ANTHONY CREEK blw NF nr Powder	MAY-JUL	13.5	12.1	90	119	59				
BEAR CREEK near Hallowa	MAY-SEP	57.8	53.7	93	111	74				
BIG CREEK blw Burn Ck	MAY-JUL	6.4	5.8	91	125	63				
BURNT near Hereford	MAY-JUL	15.4	14.3	93	156	39				
	MAY-SEP	16.9	16.0	95	148	41				
CATHERINE CK near Union	MAY-SEP	52.9	48.1	91	110	74				
DEER CK near Sumpter	MAY-JUL	11.2	10.8	94	125	63				
EAGLE CK above Skull Ck	MAY-JUL	146.7	136.4	93	113	73				
	MAY-SEP	161.9	150.6	93	113	73				
GRANDE RONDE at La Grande	MAY-JUL	94.7	76.0	80	115	45				
	MAY-SEP	98.9	79.1	80	115	44				
HURRICANE CK near Joseph	MAY-SEP	43.6	39.2	90	108	71				
IMNAHA at Ianaha	MAY-SEP	248.6	214.0	86	115	57				
LOSTINE near Lostine	MAY-SEP	115.6	99.0	86	103	68				
PINE CREEK near Oxbow	MAY-JUL	143.5	137.2	89	118	59				
POWDER near Sumpter	MAY-JUL	41.0	38.1	93	122	63				
	MAY-SEP	42.2	39.2	93	123	64				
EAST FORK HALLOWA near Joseph	MAY-JUL	8.1	7.7	93	111	74				
	MAY-SEP	10.4	9.9	95	106	77				
HALLOWA at Joseph	MAY-JUL	66.9	59.5	93	141	49				
WOLF CK RESERVOIR net Inflow	MAY-JUN	8.5	8.2	96	141	47				

*Corrected for upstream diversions or changes in reservoir storage.
Average is for 1961-80 period.

RESERVOIR	RESERVOIR STORAGE (1000AF)			WATERSHED	WATERSHED SNOWPACK ANALYSIS		
	USEABLE CAPACITY	USEABLE STORAGE THIS YEAR	LAST YEAR AVE.		NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR. AVERAGE	
PHILLIPS LAKE	73.5	77.4	71.8	43.6	0	0	0
THIEF VALLEY	17.4	18.3	18.0	15.8	0	0	0
UNITY	25.2	23.2	23.9	22.5	0	0	0
HALLOWA LAKE	37.5	36.9	31.7	28.8	0	0	0
WOLF CREEK	10.4	10.9	11.1	---			

Umatilla, Walla Walla, Willow, Rock, and Lower John Day Basins

Mountain snowpack* (inches)

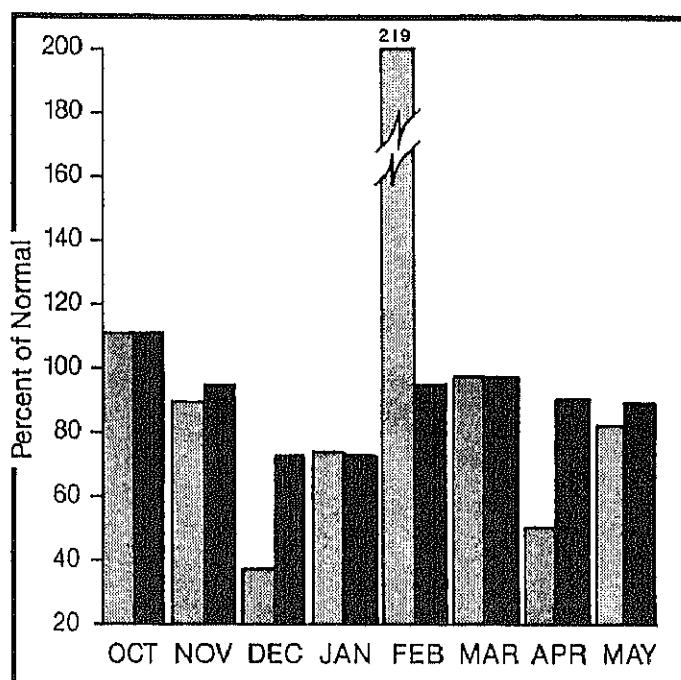


*Based on selected stations

Maximum Average

Minimum Current

Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation

Year to date precipitation

WATER SUPPLY OUTLOOK:

Summer streamflows are forecast to be the lowest in the state with a range of 74% - 84% of average. Most of the snow is gone. May precipitation was 83% of normal and for the water year to date it is one of the lowest in the state at 90% of normal. Reservoir storage is good for McKay reservoir but Cold Springs is only at 86% of average.

For more information contact your local Soil Conservation Service office.

UMATILLA, WALLA WALLA, WILLOW, ROCK AND LOWER JOHN DAY BASINS

STREAMFLOW FORECASTS

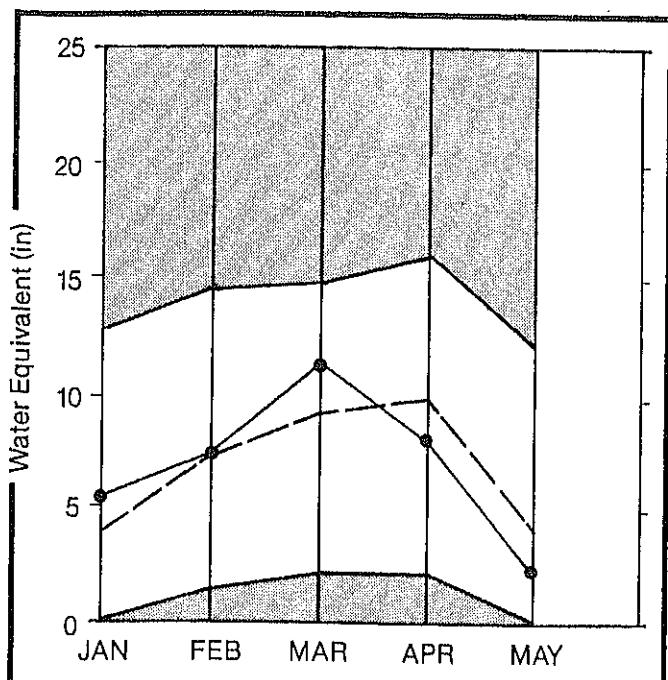
FORECAST POINT	FORECAST PERIOD	20 YR. AVE. (1000AF)	MOST PROBABLE (1000AF)	HST PROBABLE (% AVE.)	REAS. MAX. (% AVE.)	REAS. MIN. (% AVE.)	PEAK FLOW (CFS)	PEAK DATE	LOW FLOW (CFS)	LOW DATE
BUTTER CK NEAR PINE CITY	MAY-JUL	3.7	3.0	81	135	54				
COUSE CK nr Milton Freewater	MAY-JUL	1.6	1.4	81	125	62				
MCKAY near Pilot Rock	MAY-SEP	8.3	6.8	82	157	36				
PINE CREEK near Weston	MAY-JUL	0.8	0.6	75	125	30				
RHEA CREEK near Heppner	MAY-JUL	2.2	1.7	77	91	45				
ROCK CREEK above Cayuse Canyon	MAY-JUL	2.4	2.0	89	125	42				
UMATILLA near Gibbon	MAY-JUL	41.3	31.0	75	109	41				
	MAY-SEP	47.6	36.0	76	103	48				
UMATILLA near Pendleton	MAY-JUL	71.5	56.0	78	119	38				
	MAY-SEP	76.9	60.0	78	120	36				
SF WALLA WALLA nr MiltonFreewater	MAY-JUL	38.6	26.9	75	96	54				
	MAY-SEP	52.6	40.0	74	97	55				
WILLOW CREEK near Heppner	MAY-JUL	3.2	2.6	81	125	63				

*Corrected for upstream diversions or changes in reservoir storage.
Average is for 1961-80 period.

RESERVOIR STORAGE (1000AF)				WATERSHED SNOWPACK ANALYSIS				
RESERVOIR	USEABLE CAPACITY	xx USEABLE STORAGE xx		WATERSHED	NO. COURSES	THIS YEAR AS % OF		
	YEAR	THIS YEAR	LAST AVE.		AVE.D	LAST YR.	AVERAGE	
COLD SPRINGS	50.0	41.2	41.3	48.1	Walla Walla River	0	0	0
MCKAY	73.8	67.4	66.3	58.5	Umatilla River	0	0	0
WILLOW CREEK	1.8	1.9	---	---	McKay Creek	0	0	0

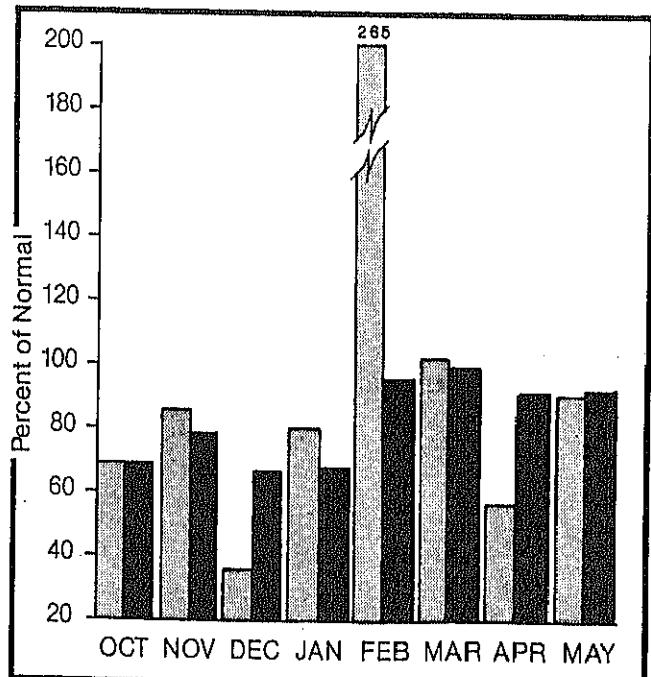
Upper John Day Basin

Mountain snowpack* (inches)



*Based on selected stations

Precipitation* (percent of normal)



*Based on selected stations

Maximum

Average

Minimum

Current

Monthly precipitation

Year to date precipitation

WATER SUPPLY OUTLOOK:

Streamflows are forecast to be below normal this summer. Some water shortages may occur in late summer. Most of the snow is gone. Precipitation during May was 91% of normal and for the water year to date has been 92%.

For more information contact your local Soil Conservation Service office.

UPPER JOHN DAY BASIN

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	20 YR. AVE. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVE.)	REAS. MAX. (% AVE.)	REAS. MIN. (% AVE.)	PEAK FLOW (CFS)	PEAK DATE	LOW FLOW (CFS)	LOW DATE
CANAS CREEK nr Ukiah	MAY-JUL	16.7	13.9	83	132	30				
	MAY-SEP	17.3	14.5	84	133	35				
NF JOHN DAY at Ritter	MAY-JUL	70.1	57.0	81	120	43				
	MAY-SEP	73.9	61.0	83	119	46				
NF JOHN DAY at Monument	MAY-JUL	349.6	297.0	83	108	62				
	MAY-SEP	365.2	280.0	77	100	54				
MOUNTAIN CREEK near Mitchell	MAY-JUL	2.1	1.7	81	95	48				
STRAWBERRY CREEK nr Prairie City	MAY-JUL	6.7	5.9	88	119	60				
	MAY-SEP	7.4	6.5	88	108	68				

RESERVOIR STORAGE (1000AF)

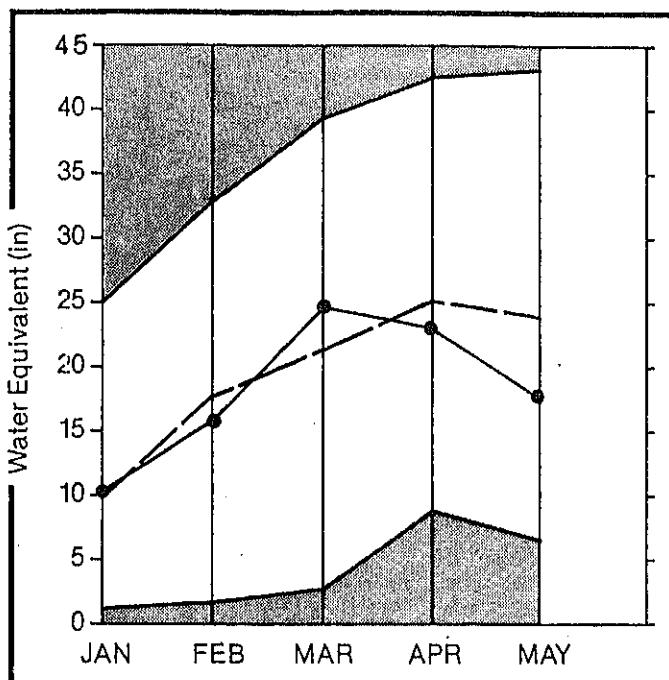
WATERSHED SNOWPACK ANALYSIS

RESERVOIR	USEABLE CAPACITY	xx USEABLE STORAGE xx	WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR. AVERAGE
	THIS YEAR	LAST YEAR	John Day, North Fork	0	0
	AVE.		John Day above Dayville	0	0

*Corrected for upstream diversions or changes in reservoir storage.
Average is for 1961-80 period.

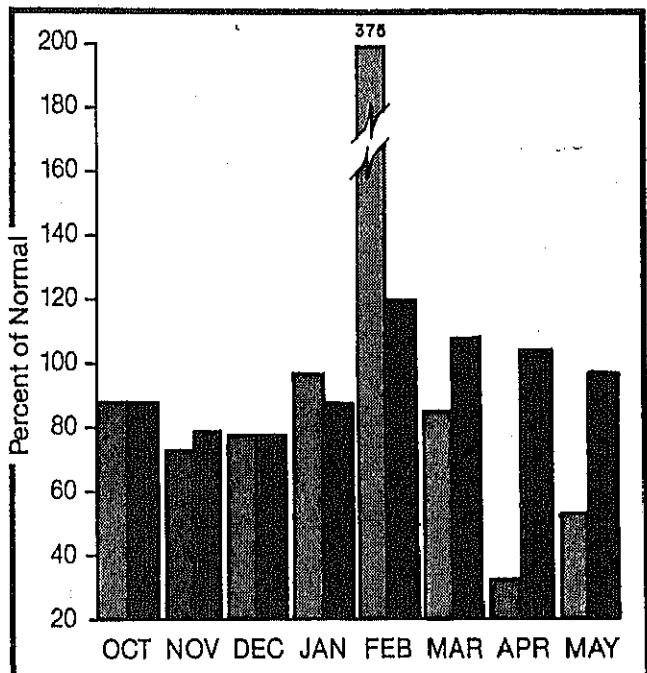
Upper Deschutes and Crooked Basins

Mountain snowpack* (inches)



*Based on selected stations

Precipitation* (percent of normal)



*Based on selected stations

Maximum

Average

Minimum

Current

Monthly precipitation

Year to date precipitation

WATER SUPPLY OUTLOOK:

Streamflows should be near normal on the Deschutes River system and below normal on the Crooked River. Only the higher elevation snow remains. Irish-Taylor and Summit Lake are the only SNOTEL sites in the area that still have snow. May precipitation was the lowest in the state with only one half the normal amounts being received. Normal precipitation has been received for the water year to date. Reservoir storage is currently above average.

For more information contact your local Soil Conservation Service office.

UPPER DESCHUTES AND CROOKED BASINS

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	20 YR. AVE. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVE.)	REAS. MAX. (% AVE.)	REAS. MIN. (% AVE.)	PEAK FLOW (CFS)	PEAK DATE	LOW FLOW (CFS)	LOW DATE
BEAVER CREEK nr Paulina	MAY-JUL	4.8	4.4	92	125	63				
	MAY-SEP	4.9	4.5	92	122	61				
CRANE PRAIRIE RES net Inflow	MAY-JUL	60.3	52.2	93	119	71				
	MAY-SEP	100.1	95.1	95	119	71				
CRESCEENT CK nr Crescent Lake	MAY-JUL	13.8	12.7	92	167	36				
	MAY-SEP	17.5	16.1	94	131	51				
CROOKED nr Prineville	MAY-JUL	35.1	28.1	80	148	34				
	MAY-SEP	35.5	28.4	80	149	34				
NF CROOKED blw Lookout Ck	MAY-JUL	4.2	3.5	83	119	48				
DESCHUTES below Bend	AUG-SEP	174.0	156.5	91	116	66				
DESCHUTES at Benham Falls	MAY-JUL	277.3	249.0	90	107	73				
	MAY-SEP	464.2	418.0	90	106	74				
DESCHUTES below Snow Creek	MAY-SEP	53.3	45.9	79	113	58				
LITTLE DESCHUTES nr Lapine	MAY-JUL	50.7	45.6	90	108	71				
	MAY-SEP	60.1	55.2	92	115	68				
OCHOCO RESERVOIR net Inflow	MAY-JUL	8.8	7.5	85	182	34				
	MAY-SEP	8.9	7.6	85	180	34				
SQUAW CREEK nr Sisters	MAY-SEP	43.7	42.0	98	112	80				
TUMALO CREEK near Bend	MAY-SEP	39.6	36.4	92	106	78				

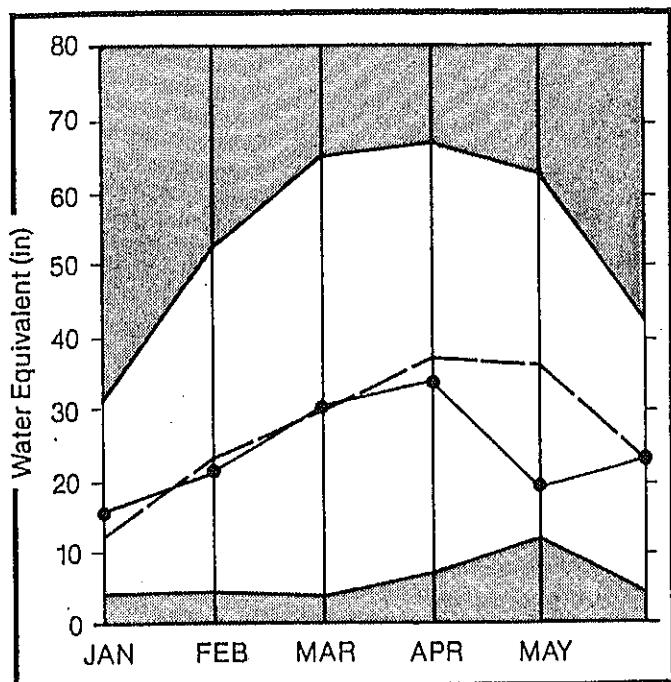
^xCorrected for upstream diversions or changes in reservoir storage.
Average is for 1961-80 period.

RESERVOIR STORAGE (1000AF) | WATERSHED SNOWPACK ANALYSIS

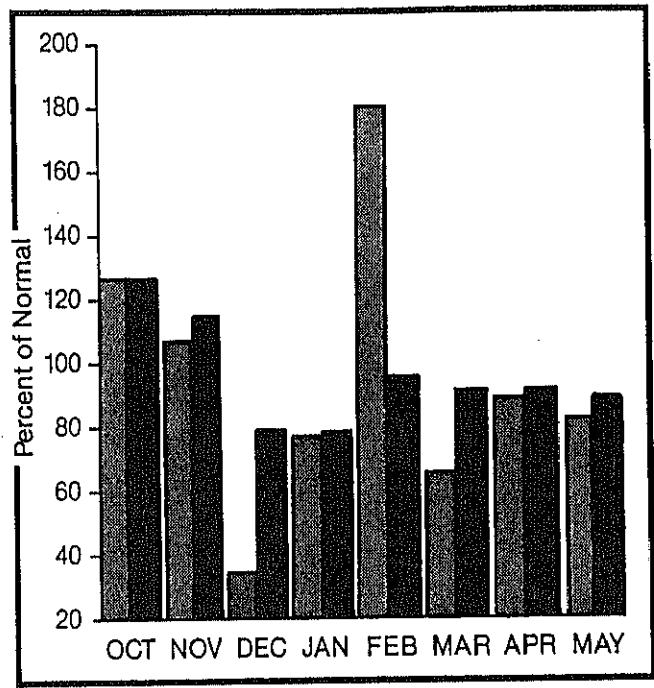
RESERVOIR	USEABLE CAPACITY	THIS YEAR	LAST YEAR	AVE.	WATERSHED	NO. COURSES	THIS YEAR AS % OF
						AVE.D	LAST YR. AVERAGE
CRANE PRAIRIE	55.3	48.0	53.2	39.3	Crooked, Ochoco	0	0
CRESCEENT LAKE	86.9	80.4	86.4	58.2	Deschutes above Wickiup	0	0
OCHOCO	47.5	43.0	41.2	31.6	Little Deschutes	0	0
PRINEVILLE	153.0	152.1	154.2	145.8	Tumalo and Squaw Creeks	0	0
WICKIUP	200.0	176.2	164.5	166.9			

Hood, Mile Creeks, and Lower Deschutes Basins

Mountain snowpack* (inches)



Precipitation* (percent of normal)



*Based on selected stations

*Based on selected stations

Maximum

Average

Minimum

Current

Monthly precipitation

Year to date precipitation

WATER SUPPLY OUTLOOK:

Streamflows are forecast to be 87% - 88% of average this summer. Only the high elevations still have a snowpack. Mt. Hood Test Site is the only SNOTEL site reporting any snow. May precipitation was 83% of average. At 89% of average, the area received the lowest year to date precipitation. Clear Lake currently has much above average storage.

For more information contact your local Soil Conservation Service office.

HOOD, MILE CREEKS AND LOWER DESCHUTES BASINS

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	20 YR. AVE. (1000AF)	HIST. PROBABLE (1000AF)	HIST. PROBABLE (% AVE.)	REAS. MAX. (% AVE.)	REAS. MIN. (% AVE.)	PEAK FLOW (CFS)	PEAK DATE	LOW FLOW (CFS)	LOW DATE
HOOD RIVER near Tucker Bridge	MAY-JUL	162.7	143.1	88	104	72				
	MAY-SEP	209.8	182.3	87	101	73				
WEST FORK HOOD RIVER nr Dee	MAY-JUL	83.1	73.1	88	103	72				
	MAY-SEP	104.5	91.9	88	103	73				
WHITE RIVER below Tygh Valley	MAY-JUL	77.1	67.0	87	105	69				
	MAY-SEP	92.2	80.2	87	107	67				

RESERVOIR STORAGE

(1000AF)

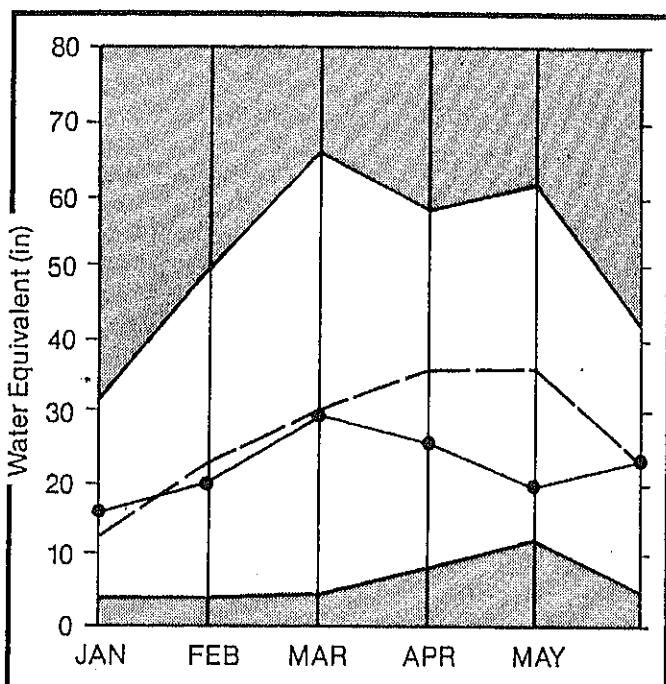
WATERSHED SNOWPACK ANALYSIS

RESERVOIR	USEABLE CAPACITY			WATERSHED	NO. COURSES AVE.0	THIS YEAR AS % OF LAST YR. AVERAGE
	THIS YEAR	LAST YEAR	AVE.			
CLEAR LAKE (WASCO)	11.9	10.3	9.8	5.6	0	0
				Hood River	0	0
				Mile Creeks	0	0
				White River	0	0

*Corrected for upstream diversions or changes in reservoir storage.
Average is for 1961-80 period.

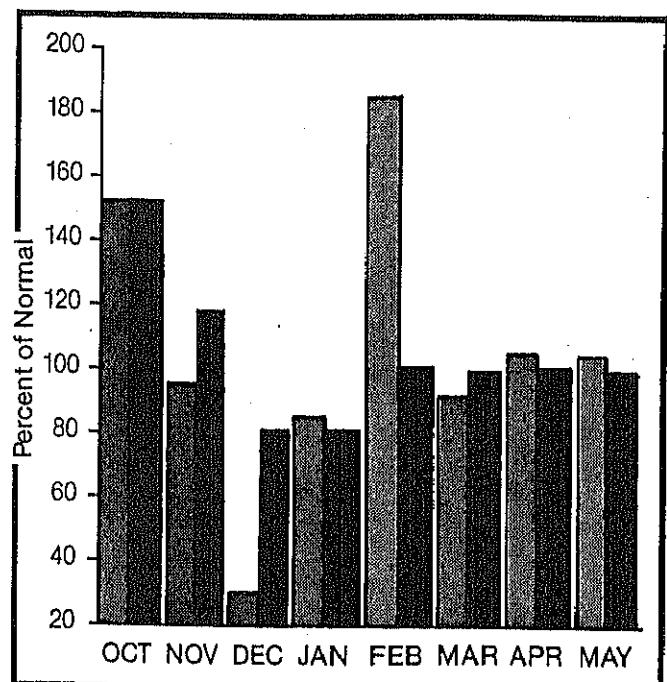
Lower Columbia Basin

Mountain snowpack* (inches)



*Based on selected stations

Precipitation* (percent of normal)



*Based on selected stations

Maximum



Average



Minimum



Current



Monthly precipitation



Year to date precipitation



WATER SUPPLY OUTLOOK:

Streamflows are forecast to be below normal this summer. The Columbia River at The Dalles flow for Jun-Sep will be 87% of average. Mountain snowpack is gone except for the high elevation sites. May precipitation was 105% of normal. For the water year to date, it has been normal.

For more information contact your local Soil Conservation Service office.

LOWER COLUMBIA BASIN

STREAMFLOW FORECASTS

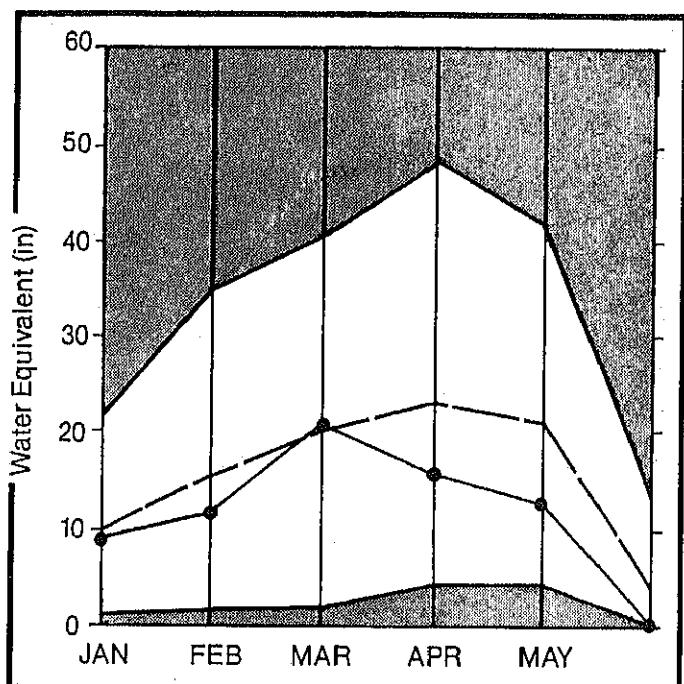
FORECAST POINT	FORECAST PERIOD	20 YR. AVE. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVE.)	REAS. MAX. (% AVE.)	REAS. MIN. (% AVE.)	PEAK FLOW (CFS)	PEAK DATE	LOW FLOW (CFS)	LOW DATE
COLUMBIA at The Dalles	MAY-JUL	73760.0	62600.0	85	98	72				
	MAY-SEP	88292.0	77800.0	88	101	75				

RESERVOIR STORAGE (1000AF)			WATERSHED SNOWPACK ANALYSIS			
RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE **	WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF	
	THIS YEAR	LAST YEAR	AVE.		LAST YR. AVERAGE	
			Sandy River	0	0	0

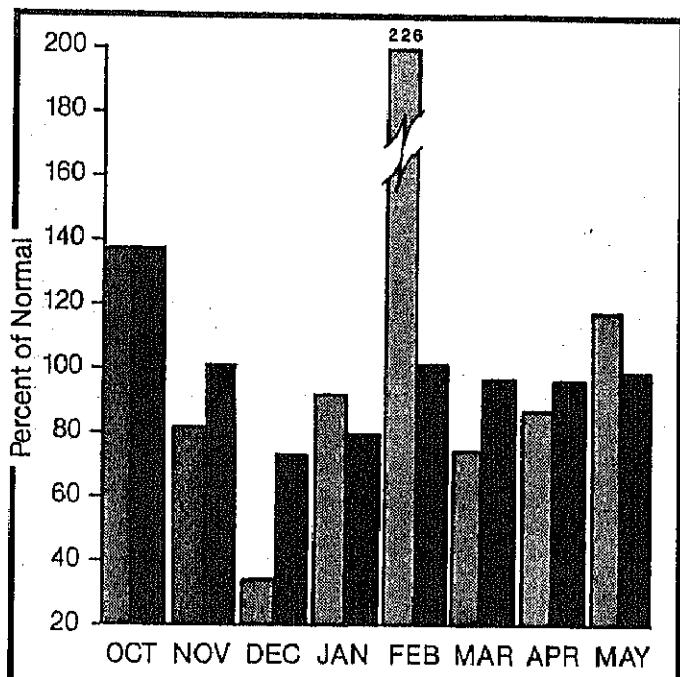
*Corrected for upstream diversions or changes in reservoir storage.
Average is for 1961-80 period.
See Page 29 for Historical Data and Flood Stages.

Willamette Basin

Mountain snowpack* (inches)



Precipitation* (percent of normal)



*Based on selected stations

*Based on selected stations

Maximum

Average

Minimum

Current

Monthly precipitation

Year to date precipitation

WATER SUPPLY OUTLOOK:

Streamflows are forecast to be near normal this year (90% - 98% of normal). The only snow that remains is in the high elevations. Only McKenzie SNOTEL site reports any snow. The Willamette Valley received 118% of normal precipitation during May. For the water year to date, it has been 99%. Irrigation reservoirs in the valley contain near average amounts of stored water.

For more information contact your local Soil Conservation Service office.

WILLAMETTE BASIN

STREAMFLOW FORECASTS

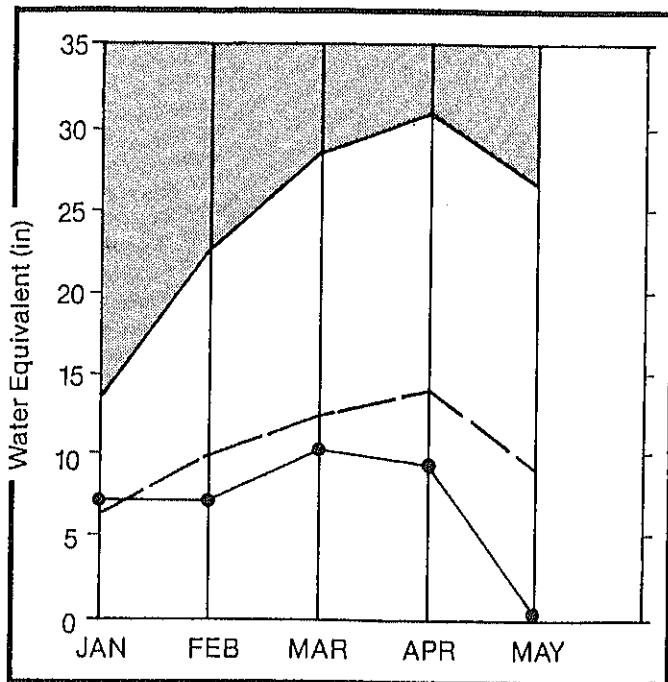
FORECAST POINT	FORECAST PERIOD	20 YR. AVE. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVE.)	REAS. MAX. (X AVE.)	REAS. MIN. (% AVE.)	PEAK FLOW (CFS)	PEAK DATE	LOW FLOW (CFS)	LOW DATE
CLACKAMAS at Estacada	MAY-JUL	443.2	399.0	90	105	75				
	MAY-SEP	554.8	505.0	91	106	76				
CLACKAMAS above Three Lynx	MAY-JUL	341.0	307.0	90	102	78				
	MAY-SEP	433.4	394.0	91	102	80				
MCKENZIE at McKenzie Bridge	MAY-JUL	323.3	274.1	91	102	80				
	MAY-SEP	466.7	424.7	91	102	80				
MCKENZIE near Vida	MAY-JUL	696.9	627.2	90	103	77				
	MAY-SEP	925.5	832.7	90	103	77				
SF MCKENZIE at Rainbow	MAY-JUL	136.8	122.1	90	105	75				
	MAY-SEP	163.7	147.3	90	107	73				
MOHAWK near Springfield	MAY-JUL	32.6	30.0	91	123	61				
OAK GROVE FORK ab Power Intake	MAY-JUL	94.4	85.0	90	117	64				
	MAY-SEP	131.0	118.0	90	110	70				
ROW near Dorena	MAY-JUL	51.3	46.3	90	136	45				
	MAY-SEP	57.3	51.6	90	136	44				
NORTH SANTIAM at Nehalem	MAY-JUL	478.5	431.0	90	120	60				
	MAY-SEP	585.6	533.0	91	106	76				
SOUTH SANTIAM at Waterloo	MAY-JUL	306.7	237.0	90	122	58				
	MAY-SEP	349.9	332.0	92	123	61				
SCOGGINS CREEK near Gaston	MAY-JUL	5.7	5.1	91	123	53				
THOMAS CREEK nr Scio	MAY-JUL	38.2	35.5	93	123	63				
COAST FORK WILLAMETTE nr London	MAY-JUL	14.0	13.2	93	129	57				
MF OF WILLAMETTE b1 MF nr Oakridge	MAY-JUL	451.0	420.0	92	108	78				
	MAY-SEP	546.9	515.0	94	109	79				
MF OF MF OF WILLAMETTE nr Oakridge	MAY-JUL	118.1	110.0	93	111	75				
	MAY-SEP	139.7	131.0	94	112	76				
WILLAMETTE at Salem	MAY-JUL	2490.4	2340.0	96	112	80				
	MAY-SEP	2973.8	2820.0	98	113	77				

RESERVOIR STORAGE (1000AF)				WATERSHED SNOWPACK ANALYSIS			
RESERVOIR	USEABLE CAPACITY	USEABLE STORAGE	LAST AVE.	WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR. AVERAGE	
BLUE RIVER **	85.5	78.7	78.7	79.8	Clackamas River	0	0
COTTAGE GROVE **	29.8	26.4	23.6	27.6	McKenzie River	0	0
COUGAR **	155.2	142.0	143.0	133.2	Row River	0	0
DETROIT **	300.7	283.5	277.6	276.2	Santiam River	0	0
DORENA **	70.5	67.0	59.5	64.9	Willamette, Middle Fork	0	0
FALL CREEK **	115.5	106.4	108.1	89.8			
FERN RIDGE **	109.6	87.9	91.5	87.4			
FOSTER **	29.7	24.8	25.0	25.9			
GREEN PETER **	268.2	247.6	247.5	247.1			
HILLS CREEK **	200.2	194.2	193.8	183.9			
LOOKOUT POINT **	337.0	319.5	321.2	290.6			
TIMOTHY LAKE	61.7	60.1	57.7	60.0			
HENRY HAGG LAKE	53.0	53.6	51.2	50.2			

*Corrected for upstream diversions or changes in reservoir storage.
Average is for 1961-80 period.

Rogue and Umpqua Basins

Mountain snowpack* (inches)



*Based on selected stations

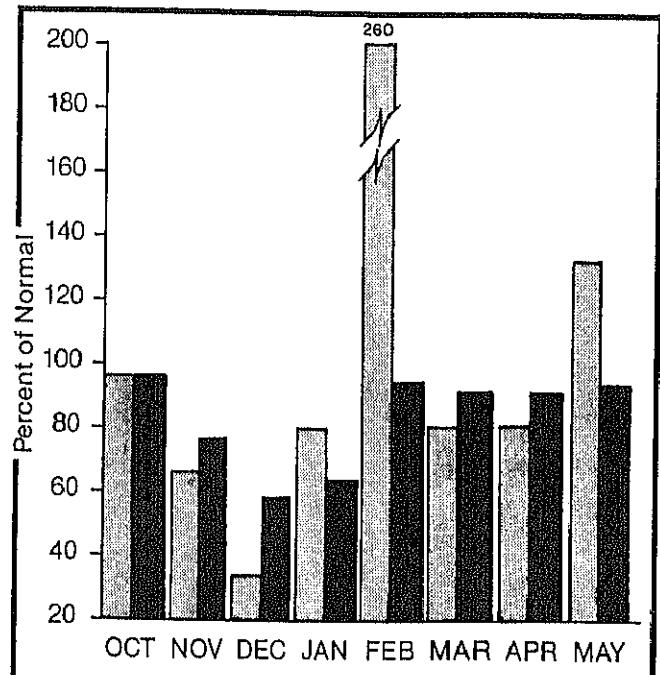
Maximum 

Average 

Minimum 

Current 

Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation 

Year to date precipitation 

WATER SUPPLY OUTLOOK:

Streamflows are forecast to be below average this summer. They range from 79% to 90% of average. Only the highest elevations still have snow. Annie Springs and Park Headquarters are the only sites that still have a snowpack. May precipitation was very heavy at 133% of average. For the water year to date, it has been 94% of average. Reservoir storage in the area is very good with all reservoirs either full or close to being full.

For more information contact your local Soil Conservation Service office.

ROGUE AND UMPQUA BASINS

STREAMFLOW FORECASTS

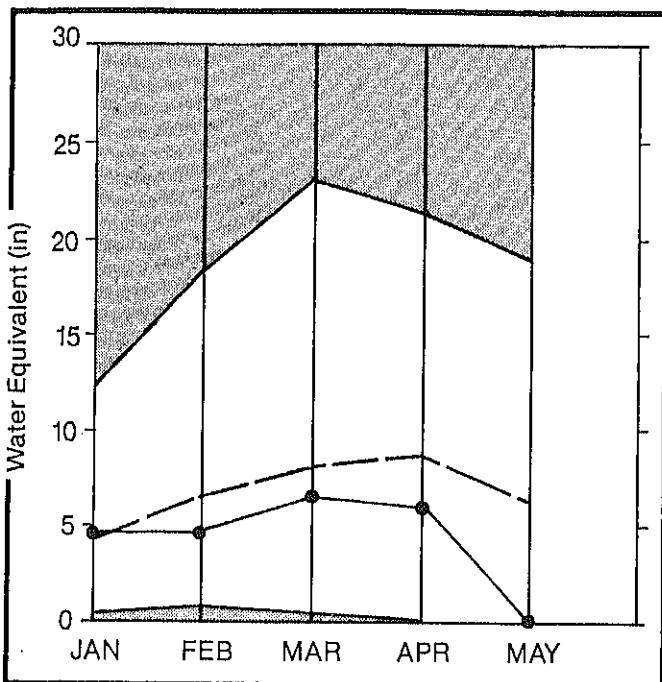
FORECAST POINT	FORECAST PERIOD	20 YR. AVE. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVE.)	REAS. MAX. (% AVE.)	REAS. MIN. (% AVE.)	PEAK FLOW (CFS)	PEAK DATE	LOW FLOW (CFS)	LOW DATE
APPLEGATE nr Copper	MAY-JUL MAY-SEP	75.6 82.4	59.7 65.1	79 79	108 109	49 49				
SF BIG BUTTE CK near Butte Falls	MAY-JUL	22.1	19.3	88	118	59				
CLEARWATER above Trap Creek	MAY-SEP	56.8	51.8	91	99	83				
COW CREEK near Azalea	MAY-JUL	8.2	7.0	89	110	61				
FOURMILE LAKE net Inflow	MAY-SEP	3.3	3.0	88	148	30				
GRAVE CREEK at Pease Bridge	MAY-JUL	3.2	2.8	88	125	63				
HYATT PRAIRIE RES net Inflow	MAY-JUL	2.5	2.2	88	120	40				
ILLINOIS near Kerby	MAY-JUL MAY-SEP	85.2 92.3	71.6 77.5	88 88	124 122	45 46				
NF LITTLE BUTTE CK nr Lakecreek	MAY-JUL MAY-SEP	7.1 11.3	6.1 9.7	86 86	141 142	28 27				
RED BLANKET CK nr Prospect	MAY-JUL	25.9	22.3	88	116	58				
ROGUE RIVER ab Prospect	MAY-JUL MAY-SEP	178.1 232.6	151.0 196.0	88 88	101 99	69 69				
SF ROGUE near Prospect	MAY-JUL MAY-SEP	45.5 55.6	39.1 47.8	86 86	110 110	62 63				
ROGUE RIVER at Raygold	MAY-JUL MAY-SEP	483.9 642.1	411.0 540.0	85 84	106 103	64 65				
ROGUE RIVER at Grants Pass	MAY-JUL MAY-SEP	498.9 616.7	424.0 524.0	85 85	108 108	62 62				
SUCKER CREEK b1 Little Grayback	MAY-JUL	34.7	28.4	82	112	52				
NORTH UMPQUA nr Tokatee Falls	MAY-SEP	137.7	118.0	86	99	73				
NORTH UMPQUA at Winchester	MAY-JUL	469.5	404.0	88	111	61				
SOUTH UMPQUA at Brockway	MAY-JUL	180.5	159.0	85	110	60				
SOUTH UMPQUA near Tiller	MAY-JUL	100.0	85.0	85	105	65				

RESERVOIR STORAGE (1000AF)				WATERSHED SNOWPACK ANALYSIS			
RESERVOIR	USEABLE CAPACITY I YEAR	** USEABLE STORAGE ** THIS YEAR	LAST YEAR	WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR.	AVERAGE
APPLEGATE	75.2	72.4	73.8	---	Applegate River	0	0
EMIGRANT LAKE	39.0	37.5	35.4	35.4	Bear Creek	0	0
FISH LAKE	8.0	7.0	6.7	6.5	Butte Creek	0	0
FOURMILE LAKE	16.1	15.4	---	11.9	Illinois River	0	0
HOWARD PRAIRIE	60.0	60.3	60.6	53.9	North Umpqua River	0	0
HYATT PRAIRIE	16.1	16.1	15.5	14.7	Rogue River	0	0
LOST CREEK **	315.0	313.0	306.4	---	Mt. Ashland	0	0

*Corrected for upstream diversions or changes in reservoir storage.
Average is for 1961-80 period.

Klamath Basin

Mountain snowpack* (inches)

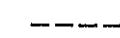


*Based on selected stations

Maximum



Average



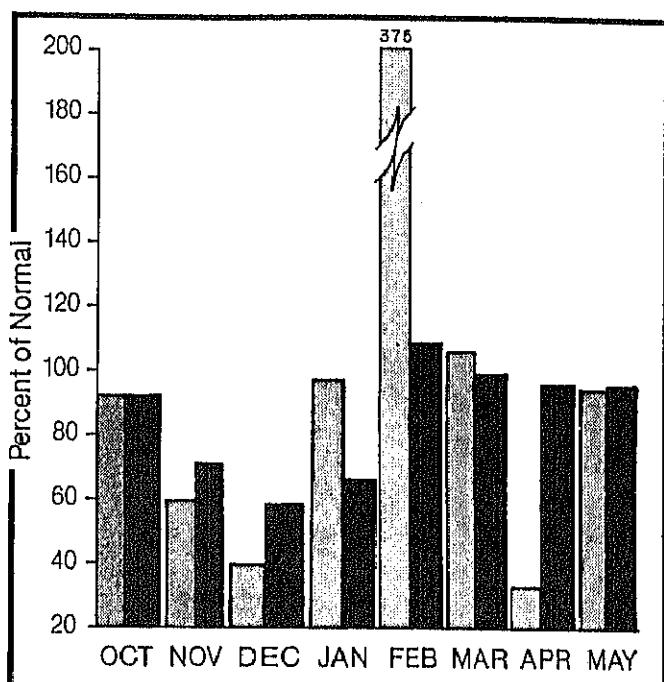
Minimum



Current



Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation



Year to date precipitation



WATER SUPPLY OUTLOOK:

Streamflow in Klamath County should be near normal this summer. Most of this year's snow is gone. Precipitation in the county has been about 95% for the month of May and also for the water year to date. Current reservoir storage is excellent.

For more information contact your local Soil Conservation Service office.

KLAMATH BASIN

STREAMFLOW FORECASTS

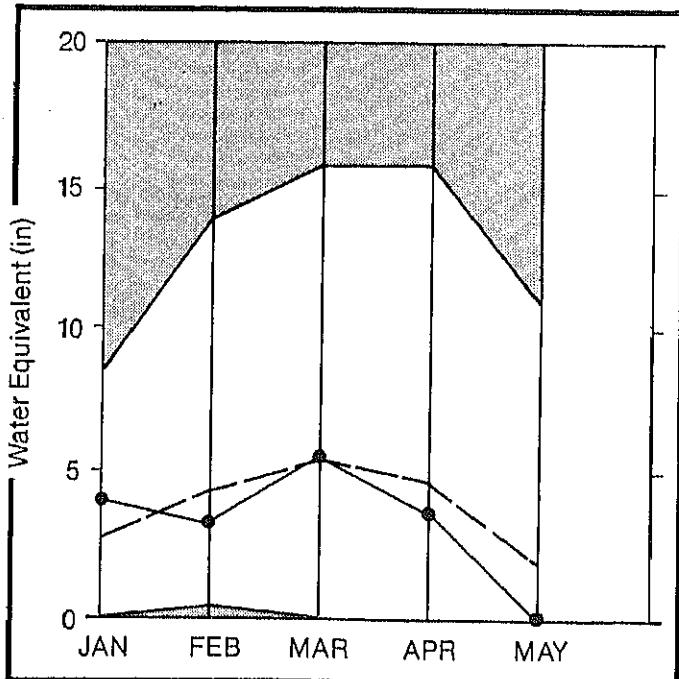
FORECAST POINT	FORECAST PERIOD	20 YR. AVE. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVE.)	REAS. MAX. (% AVE.)	REAS. MIN. (% AVE.)	PEAK FLOW (CFS)	PEAK DATE	LOW FLOW (CFS)	LOW DATE
CLEAR LAKE net Inflow	MAY-JUL	15.5	14.8	93	161	32				
	MAY-SEP	18.0	16.8	93	161	39				
GERBER RESERVOIR net Inflow	MAY-JUL	4.3	4.0	93	163	47				
	MAY-SEP	4.7	4.4	94	149	43				
SPRAGUE near Chiloquin	MAY-SEP	155.9	148.1	95	117	73				
UPPER KLAMATH LAKE net Inflow	MAY-SEP	331.0	320.0	97	117	77				
WILLIAMSON near Chiloquin	MAY-SEP	269.4	257.0	96	117	75				

*Corrected for upstream diversions or changes in reservoir storage.
Average is for 1961-80 period.

RESERVOIR STORAGE (1000AF)				WATERSHED SNOWPACK ANALYSIS				
RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE **		WATERSHED	NO. COURSES	THIS YEAR AS % OF		
	THIS YEAR	LAST YEAR	AVE.		AVE,D	LAST YR.	AVERAGE	
CLEAR LAKE (CALIF)	513.3	407.5	384.9	256.5	0	0	0	
GERBER	94.3	86.4	87.4	64.9	0	0	0	
UPPER KLAMATH LAKE	523.7	502.5	498.3	516.3	0	0	0	
				Willamette River	0	0	0	

Lake County and Goose Lake Basins

Mountain snowpack* (inches)



*Based on selected stations

Maximum



Average



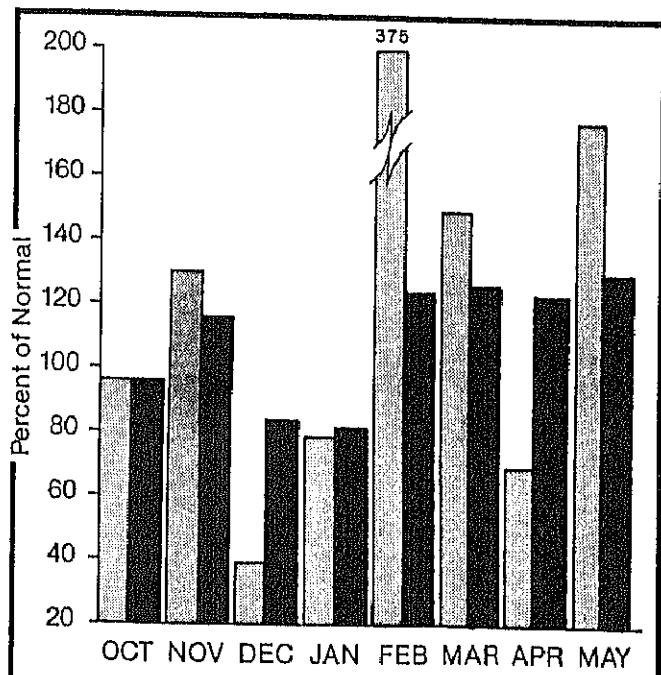
Minimum



Current



Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation



Year-to-date precipitation



WATER SUPPLY OUTLOOK:

Lake County should have the greatest streamflow in the state this summer (as a percent of average). The forecasts range from 96% to 107% of average. Most of the snow has melted for the season. Lake County has received the greatest precipitation (again, as a percent of average) in the state for the month of May (179%) and for the winter season (131%). Reservoir storage is excellent with all reservoirs nearly full.

For more information contact your local Soil Conservation Service office.

LAKE COUNTY AND GOOSE LAKE BASINS

STREAMFLOW FORECASTS

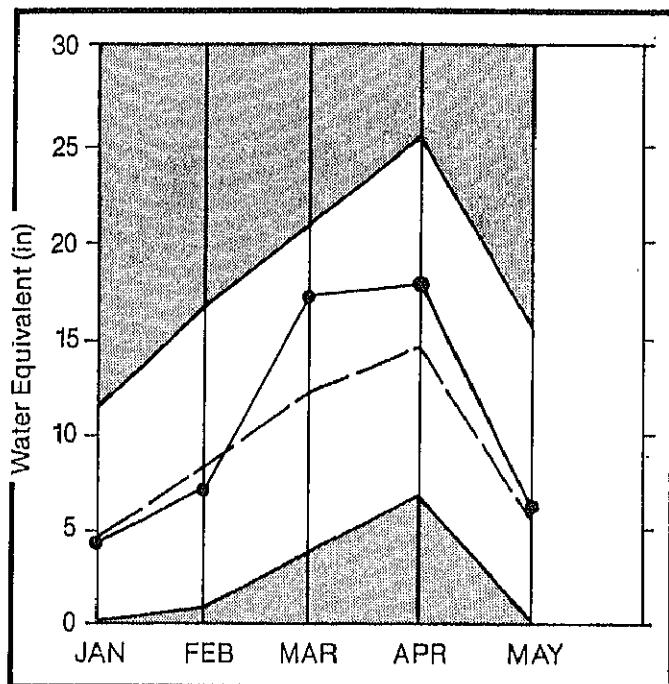
FORECAST POINT	FORECAST PERIOD	20 YR. AVE. (1000AF)	HST PROBABLE (1000AF)	HST PROBABLE (% AVE.)	REAS. MAX. (% AVE.)	REAS. MIN. (% AVE.)	PEAK FLOW (CFS)	PEAK DATE	LOW FLOW (CFS)	LOW DATE
BRIDGE CREEK at Spahr Ranch	MAY-JUL	3.0	3.2	107	167	67				
CHEWAUCAN near Paisley	MAY-JUL	53.2	53.2	100	143	58				
	MAY-SEP	57.1	57.1	100	138	61				
COTTONWOOD CK near Lakeview	MAY-JUL	6.0	6.0	100	150	50				
DEEP CREEK near Adel	MAY-JUL	42.8	42.8	100	147	51				
	MAY-SEP	44.7	44.7	100	148	51				
DREWS RESERVOIR net Inflow	MAY-JUL	9.4	9.0	96	149	43				
HONEY CREEK near Plush	MAY-JUL	11.1	11.3	102	180	36				
	MAY-SEP	11.3	11.3	102	177	35				
SILVER CREEK near Silver Lake	MAY-JUL	8.1	7.9	98	160	37				
TWENTYMILE near Adel	MAY-JUL	10.3	10.3	100	194	39				
	MAY-SEP	10.8	10.0	100	194	37				

*Corrected for upstream diversions or changes in reservoir storage.
Average is for 1961-80 period.

RESERVOIR STORAGE (1000AF)				WATERSHED SNOWPACK ANALYSIS				
RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE **	HATERSHED	ND. COURSES AVE.D	THIS YEAR AS % OF	LAST YR.	AVERAGE	
COTTONWOOD	8.7	8.5	7.4	6.9	Chewaucan River	0	0	0
DREWS	63.0	62.1	50.5	54.1	Deep Creek	0	0	0
THOMPSON VALLEY	18.4	17.3	17.0	15.0	Drew Creek	0	0	0
					Honey Creek	0	0	0
					Silver Creek (Lake Co.)	0	0	0
					Twentymile Creek	0	0	0

Harney Basin

Mountain snowpack* (inches)



*Based on selected stations

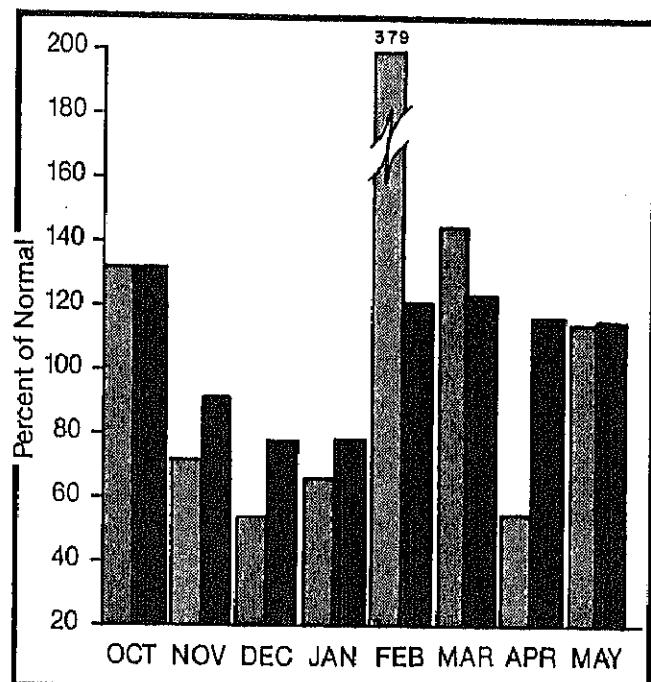
Maximum

Average

Minimum

Current

Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation

Year-to-date precipitation

WATER SUPPLY OUTLOOK:

Harney County will have below normal streamflow this summer. Just about all the snow is currently gone. Precipitation has been about 115% of average for the month of May and also for the Oct-May period. Malheur Lake is forecast to have a July 1 elevation of 4102.30 feet.

For more information contact your local Soil Conservation Service office.

HARNEY BASIN

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	20 YR. AVE. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVE.)	REAS. MAX. (% AVE.)	REAS. MIN. (% AVE.)	PEAK FLOW (CFS)	PEAK DATE	LOW FLOW (CFS)	LOW DATE
DONNER UND BLITZEN nr Frenchglen	MAY-JUL	42.0	35.0	83	114	52				
	MAY-SEP	47.1	39.0	83	113	53				
SILVER CREEK near Riley	MAY-JUL	5.6	4.7	84	179	36				
SILVIES near Burns	MAY-JUL	36.9	30.7	83	146	33				
	MAY-SEP	38.8	32.3	83	149	34				
TROUT CREEK nr Denio	MAY-JUL	5.9	5.3	90	169	34				
	MAY-SEP	6.9	6.2	90	159	29				

*Corrected for upstream diversions or changes in reservoir storage.
Average is for 1961-80 period.

RESERVOIR STORAGE (1000AF) | WATERSHED SNOWPACK ANALYSIS

RESERVOIR	USEABLE CAPACITY	USEABLE STORAGE			WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR. AVERAGE
		THIS YEAR	LAST YEAR	AVE.			
					Donner und Blitzen River	0	0
					Silver Creek (Harney Co)	0	0
					Silvies River	0	0
					Trout Creek	0	0

HISTORICAL DATA (COLUMBIA RIVER AT THE DALLES)

Year	STREAMFLOW (1,000 AF)			REGULATED PEAK (1,000cfs)	DATE
	APR-SEP	APR-JUN	MAY-JUN		
1961	101,940	76,860	66,185	699	JUN 8
1962	95,260	66,516	50,819	460	JUN 5
1963	87,860	58,499	47,812	437	JUN 18
1964	110,422	73,512	63,670	662	JUN 18
1965	114,222	80,098	62,467	520	JUN 9
1966	87,386	58,250	45,962	396	JUN 12
1967	109,319	74,378	66,452	622	JUN 10
1968	89,102	55,593	47,994	404	JUN 13
1969	112,377	85,742	63,899	515	MAY 15
1970	88,243	62,993	55,227	425	MAY 28
1971	126,898	91,781	76,453	557	MAY 13
1972	135,500	97,041	81,451	619	JUN 20
1973	65,549	43,765	36,565	221	DEC 5
1974	139,501	99,035	78,946	588	JUN 20
1975	108,906	73,018	62,861	422	MAY 17
1976	122,771	79,084	62,554	418	MAY 14
1977	54,108	35,505	28,394	213	JAN 25
1978	100,968	67,287	52,035	313	JUN 10
1979	76,700	54,900	44,984	311	MAY 25
1980	91,631	68,229	53,704	345	JUN 18
1961-80 AVG	100,933	70,104	57,422	457	

LOWER COLUMBIA RIVER FLOOD STAGES (WITH 9.5' TIDE AT ASTORIA)

VANCOUVER GAGE (NWS)	FLOW AT THE DALLES (1,000 cfs)	SAUVIE		DEER			
		SANDY	ISL.	SCAPPOOSE	ISL.	RAINIER	BEAVER
		RIVER MILES				52.0	47.0
35 (1894)	1210	41.2	34.2	33.3	28.5	21.9	17.5
34	1160	40.5	33.5	32.5	27.7	21.2	17.0
33	1100	39.6	32.4	31.4	26.7	20.2	16.1
32 (1972)	1050	38.9	31.5	30.5	25.7	19.5	15.4
31 (1948)	1000	38.0	30.7	29.5	25.1	18.8	14.7
30	943	36.6	29.5	28.5	24.3	18.1	14.0
29	897	35.5	28.5	27.7	23.7	17.5	13.4
28	853	34.3	27.5	26.7	22.8	17.0	13.0
27 (1956)	811	33.0	26.5	25.6	21.8	16.2	12.5
26 (1950)	771	32.1	25.5	24.6	20.9	15.5	12.2
25	733	30.7	24.2	23.2	19.7	14.6	11.7
24	697	29.7	23.0	22.2	19.0	14.1	11.4
23	662	29.0	22.3	21.4	18.4	13.6	11.2
22	628	28.1	21.4	20.3	17.2	13.0	10.9
21	595	27.2	20.7	19.5	16.4	12.6	10.6
20 (1954)	564	26.2	19.8	18.6	15.5	12.1	10.2
19	534	25.5	19.2	18.0	15.0	11.8	10.0
18	501	24.4	18.3	17.2	14.3	11.4	9.8
17	479	23.4	17.4	16.4	13.7	11.0	9.6
16	452	22.4	16.5	15.5	13.0	10.5	9.3

ERRATA: 1986 WATER SUPPLY OUTLOOK REPORTS FOR OREGON

STATE-WIDE SUMMARY:

Streamflow:

	<u>Stream</u>	<u>Period</u>	<u>% of Avg</u>	<u>Report</u>
Previously Reported:	Grande Ronde at LaGrande	Mar-Sep	89%	JAN
Correction:	" " "	Apr-Sep	"	

BASIN SUMMARY:

Rogue and Umpqua:

Previously Published:	...water year to date, the precipitation has been 73%.	JAN
Correction:	" " " precipitation has been 59%.	

STREAMFLOW FORECASTS:

	<u>Forecast Point</u>	<u>Period</u>	<u>Avg.</u>	<u>1000 AF</u>	<u>Report</u>
<u>Umatilla, Walla Walla, Willow, Rock and Lower John Day Basins:</u>					
Previously Reported:	Pine Creek nr Weston	Feb-Sep	5.6	4.6	JAN
Correction:	" " "	Feb-Jul	"	"	
Previously Published:	SF Walla Walla nr Milton Freewater	Mar-Sep	99.0	90.0	JAN
Correction:	" " "	" "	80.3	72.3	
Previously Published:	SF Walla Walla nr Milton Freewater	Apr-Sep	99.0	89.0	JAN
Correction:	" " "	" "	67.4	60.0	

RESERVOIR STORAGE:

<u>Willamette Basin</u>	<u>Reservoir</u>	<u>Usable Capacity</u>	<u>This Yr Storage</u>	<u>20 Yr Avg</u>	<u>Report</u>
Previously Published:	Blue River	85.6			JAN
Correction:	" "	85.5			
Previously Published:	Cottage Grove	30.0			JAN
Correction:	" "	29.8			
Previously Published:	Detroit	299.9			JAN
Correction:	" "	300.7			
Previously Published:	Fall Creek	115.0			JAN
Correction:	" "	115.5			
Previously Published:	Fern Ridge	94.2			JAN
Correction:	" "	109.6			

ERRATA: 1986 WATER SUPPLY OUTLOOK REPORTS FOR OREGON

RESERVOIR STORAGE continued...

Previously Published:	Foster	30.0		JAN
Correction:	" "	29.7		

Previously Published:	Green Peter	270.0		JAN
Correction:	" "	268.2		

Previously Published:	Hills Creek	200.0		JAN
Correction:	" "	200.2		

Previously Published:	Lookout Point	337.2		JAN
Correction:	" "	337.0		

Owyhee and Malheur Basin:

Previously Published:	Owyhee	715.0	706.1	560.8	APR
Correction:	" "	"	"	560.6	

Previously Published:	Owyhee	715.0	713.9	618.4	MAY
Correction:	" "	"	"	606.9	

Burnt, Powder, Pine, Grande Ronde and Imnaha Basins:

Previously Published:	Unity	25.2	25.3	24.1	MAY
Correction:	" "	"	"	24.5	

Upper Deschutes and Crooked Basins:

Previously Published:	Prineville	153.0	153.3	145.8	MAY
Correction:	" "	"	"	147.4	

Rogue and Umpqua Basin:

Previously Published:	Howard Prairie	60.0	50.6	45.1	APR
Correction:	" "	"	60.6	"	

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
1220 S.W. 3RD AVE., 16TH FLOOR
PORTLAND, OREGON 97204

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300

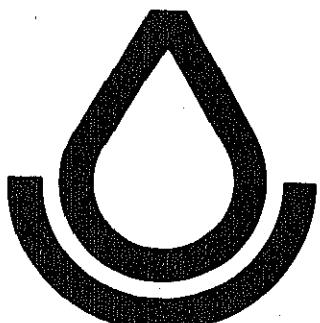
THIRD-CLASS BULK RATE
POSTAGE AND FEES PAID
USDA - SCS
PORTLAND OR
PERMIT NO G-267

THIRD CLASS MAIL

Oregon
Water Supply Outlook

and

Federal - State - Private
Cooperative Snow Surveys



SOIL CONSERVATION SERVICE

IMPORTANT NOTICE

(DETACH HERE)

WATER SUPPLY OUTLOOK FOR OREGON

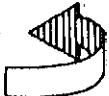
If you wish to continue to receive this publication, detach this page, sign your name in the space below, fold on the heavy line, staple or tape the folded page and mail. If more than one copy of the publication is desired, place the number in the box by your signature.

Signed: _____

Suggestions, comments or remarks: _____

Print or type your name and address on back
of this sheet, if it is not there already

(FOLD HERE)



SNOW SURVEY SUPERVISOR
SOIL CONSERVATION SERVICE
1220 S.W. THIRD AVENUE
PORTLAND, OREGON 97204